

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

UNITED STATES OF AMERICA,

- against -

DERON BOONE,

Defendant.

**MEMORANDUM
OPINION & ORDER**

23 Cr. 427 (PGG)

PAUL G. GARDEPHE, U.S.D.J.:

In this felon-in-possession case, the Government intends to call as a witness at trial New York City Police Department (“NYPD”) Criminalist Smita Kamalakshan to offer expert testimony regarding ballistics evidence. (Govt. MIL Opp. (Dkt. No. 57) at 3)¹ Defendant Deron Boone has moved in limine to preclude or limit Criminalist Kamalakshan’s testimony, arguing that the Government “cannot show that the field of ballistics identification is scientifically valid[,] and has not shown that the witness conducted her examination of the ballistics evidence in a reliable manner.” (Def. MIL Br. (Dkt. No. 53) at 3) This Court conducted a Daubert hearing concerning Criminalist Kamalakshan’s testimony on May 9, 2024.

For the reasons stated below, Defendant’s motion to preclude or limit Criminalist Kamalakshan’s testimony will be denied.

¹ The page numbers of documents referenced in this opinion correspond to the page numbers designated by this District’s Electronic Case Files (“ECF”) system.

BACKGROUND

I. FACTS

The Defendant is charged with felon in possession, in violation of 18 U.S.C. § 922(g)(1). (Indictment (Dkt. No. 5)) The charge arises out of a February 14, 2023 shooting incident at 1428 Webster Avenue, Apartment 19G, Bronx, New York (the “Apartment”). (Dec. 12, 2023 Hr’g Tr. (Dkt. No. 34) at 7) At that time, the Defendant lived in the Apartment with his roommate, Benjamin Fortune. (Id. at 123)

According to the Government, in the early morning hours of February 14, 2023, Fortune called 911 to report a shooting inside the Apartment. (Id. at 5; Fortune Affm. (Dkt. No. 16-4) ¶ 6) NYPD officers arrived a few minutes later to investigate. (Dec. 12, 2023 Hr’g Tr. (Dkt. No. 34) at 7) Upon arrival, the officers noticed bullet holes in the Apartment door. The bullet holes indicated that shots had been fired from outside the Apartment into the Apartment, and from inside the Apartment through the door and into the hallway. (Id. at 13-14) The officers observed shell casings on the floor both inside and outside the Apartment. (Id. at 10)

The officers then spoke with Fortune and the Defendant. Both men told the officers that an unknown person had fired shots into the Apartment, and that another person – whom they did not know – had been inside the Apartment at the time of the shooting, and that this person returned fire, shooting bullets through the door and into the hallway outside the Apartment. Both shooters left the area before the police officers had arrived. (Cmplt. (Dkt. No. 1) ¶ 4(c))

The officers obtained consent to search from Fortune. (Dec. 12, 2023 Hr’g Tr. (Dkt. No. 34) at 21-22) During the search, officers observed a small black safe in Boone’s bedroom. (Cmplt. (Dkt. No. 1) ¶ 4(g)) The officers asked Boone to open the safe, but he refused to do so. (Dec. 12, 2023 Hr’g Tr. (Dkt. No. 34) at 28-29) The officers then obtained a search

warrant for the safe from a state court judge. (Cmplt. (Dkt. No. 1) ¶ 4(h)) After obtaining the search warrant, the NYPD officers returned to the Apartment to open the safe. (Dec. 12, 2023 Hr’g Tr. (Dkt. No. 34) at 33, 87) The officers then opened the safe and found a 9 mm. pistol inside. (Cmplt. (Dkt. No. 1) ¶¶ 4(j), 5) The Defendant was then placed under arrest. (Id. ¶ 4(k))

The 9 mm. pistol had an 18-round magazine. Thirteen rounds were in the magazine, and one round was in the pistol’s chamber. (Govt. MIL Br. (Dkt. No. 50) at 5)

II. CRIMINALIST MONROE’S EXAMINATION OF THE SHELL CASINGS

On February 14, 2023, NYPD personnel recovered 13 spent shell casings from the vicinity of the Apartment. Nine 9 mm. shell casings were recovered from the hallway just outside the Apartment, and four 9 mm. shell casings were recovered from inside the Apartment. (Govt. MIL Opp. (Dkt. No. 57) at 5)

On February 17, 2023, an NYPD detective assigned to the Firearms Analysis Section test-fired the 9 mm. pistol recovered from the Apartment four times. The shell casings generated from the test-fires were maintained for comparison purposes. (Id. at 6; Govt. MIL Br. (Dkt. No. 50) at 6)

On April 11, 2024, Criminalist Crystina Monroe of the NYPD’s Firearms Analysis Section conducted a microscopic comparison of the four shell casings recovered inside the Apartment with the nine shell casings recovered in the hallway outside the Apartment. (GX 100 at 1) Criminalist Monroe determined that the four shell casings recovered inside the Apartment were “discharged from the SAME gun based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics.” (Id.) (emphasis in original) Criminalist Monroe also determined that the nine 9 mm. shell casings recovered from outside the Apartment were “discharged from a SECOND gun based on the observed agreement

of their class characteristics and sufficient agreement of their individual characteristics.” (Id.) (emphasis in original)

On April 15, 2024, Criminalist Monroe conducted a microscopic comparison of the four shell casings that were recovered inside the Apartment with the shell casings of the four rounds that were test fired from the 9 mm. pistol. She determined that the four shell casings recovered inside the Apartment were discharged from the 9 mm. pistol recovered from the safe found in Boone’s bedroom “based on the observed agreement of their class characteristics and sufficient agreement of their individual characteristics when compared to Test Fired Cartridge Casings.” (GX 101 at 2)

III. DAUBERT HEARING

The Government intends to call at trial a second examiner with the NYPD’s Firearms Analysis Section – Criminalist Smita Kamalakshan. Kamalakshan served as the “verifier” for the ballistics analysis performed by Monroe. (GX 100, at 5; GX 101, at 6) As the verifier, Kamalakshan performed an independent analysis of the same shell casing analyzed by Criminalist Monroe, and she reached the same conclusions as Monroe. (Govt. MIL Opp. (Br. Dkt. 57) at 6-7)

The Government states that Kamalakshan will testify at trial concerning

(i) her training, qualifications, and experience in the field of firearm and toolmark examination; (ii) the foundations of the field of firearm and toolmark examination, including the operation of firearms, the effects of the manufacturing process on firearms and ballistics evidence, toolmark identification, and use of the comparison microscope; and (iii) her opinions, based on her training and experience, about the matches [of the cartridge casings that she reviewed], and that those opinions are based on the application of her training and experience to the microscopic examination and comparison of the relevant shell casings and the toolmarks and ballistics impressions present on that evidence.

(Id. at 8)

Kamalakshan testified at the May 9, 2024 Daubert hearing.

A. Background and Qualifications

At the Daubert hearing, Criminalist Kamalakshan testified that she has worked for the past seven years in the Firearms Analysis Section of the NYPD Laboratory. (May, 9 2024 Hr’g Tr. at 3) Her duties there include, inter alia, “doing microscopic comparisons of ballistic evidence,” analyzing “both fired and unfired bullets in casings, to determine a common origin.” (Id. at 4)

Prior to assuming this position, Kamalakshan took a “14-month long firearms identification training [course] in ballistic evidence,” based on a curriculum supplied by the Association of Firearms and Toolmarks Examiners (“AFTE”). (Id.) AFTE is a professional organization that furthers research and the exchange of information regarding the analysis of ballistics evidence. (Id. at 8) During her AFTE training, Criminalist Kamalakshan “analyzed and examined thousands of pieces of [ballistics] evidence.” (Id. at 5) She has also received training from the Bureau of Alcohol, Tobacco, and Firearms in the use of the Integrated Ballistics Identification System, or “IBIS,” which is a “computer database of ballistic images that can later be utilized to compare cartridge casings.” (Id.) She completed her most recent training in January 2023. (Id.)

In addition to her training, Kamalakshan is required to annually pass proficiency tests in the analysis of ballistics evidence. (Id. at 8) These proficiency tests are administered by an outside company. In the proficiency testing, Kamalakshan is required to compare and state conclusions regarding various ballistics samples. (Id. at 7) She took and passed her most recent proficiency test last year. (Id.)

In her career, Criminalist Kamalakshan has analyzed ballistics evidence in “over 100 cases.” (Id. at 11) Considering her work and her training as a whole, Kamalakshan has

evaluated “thousands of pieces of [ballistics] evidence.” (Id.) She has also offered expert testimony in court regarding her analysis of ballistics evidence. (Id.)

B. Methodology for Analyzing Ballistics Evidence

Criminalist Kamalakshan testified that ammunition in the form of a “cartridge” – such as the 9 mm. cartridges at issue here – consists of four components: the “bullet,” the “casing” that holds the bullet, the “propellant” inside the casing, and the base of the casing, called the “primer.” (Id. at 10) When the “firing pin” of a firearm “pierces the primer it will detonate and it will create a spark which ignites the gunpowder that is inside of the casing . . . [,] which causes the cartridge casing to swell[] and release the bullet from the casing and out of the barrel.” (Id.)

The “breech face” is a component at the rear of the firearm, which the cartridge casing “rests upon” before it is fired. (Id. at 11) When the gun is fired, “[w]ith the energy that it takes for that bullet to exit out of the barrel, that same energy is pushing back, pushing the cartridge back to the breech face.” (Id.) Because the breech face “contains imperfections created by the tools” during the manufacturing process, “[t]hat imperfection will then be impressed on the base of that cartridge casing.” (Id.) In other words, the cartridge casing will “get scraped as it gets ejected,” leaving marks on the casing. (Id. at 31) Those marks – which are known as “toolmarks” – “occur when two objects, one a harder object, leaves []marks on a softer object.” (Id.)

In analyzing ballistics evidence, Kamalakshan uses a “comparison microscope,” which consists of “two compound microscopes joined together by an optical bridge.” The comparison microscope “allows the examiner to view two pieces of evidence side by side under the same magnification and similar lighting conditions.” (Id. at 12)

When comparing two pieces of ballistics evidence, Kamalakshan first determines whether they share similar “class characteristics.” (Id. at 12) “Class characteristics” are “intended by the manufacturer” and include – as to cartridge casings – markings reflecting “the shape of a firing pin,” and as to bullets, the “rifling,” as determined by the number of grooves cut into the gun barrel by the manufacturer. (Id.) If the class characteristics of the ballistics evidence are different, she classifies the evidence into “separate groups.” (Id. at 13) If the class characteristics are the same, she classifies the evidence into “one group.” (Id.)

For ballistics evidence that share class characteristics, Criminalist Kamalakshan looks for similar “individual characteristics.” (Id. at 13) Individual characteristics are “not intended by the manufacturer” and are “accidental”:

There are multiple tools that are making the firearm. . . . [T]hey will leave their unique marks on that firearm. So, individual marks can also happen during use and abuse of that firearm. It could happen if it is not cleaned properly or it can happen if there is corrosion. All of these factors introduce individual marks. . . . [T]hey are unique to that particular firearm.

(Id.)

Kamakshan finds an “identification” between two pieces of ballistics evidence where there is “agreement of discernible class characteristics” and “sufficient agreement” of the individual characteristics. (Id. at 14) She defined “sufficient agreement” as the “significant duplication of random toolmarks” on two pieces of evidence. (Id. at 28) She described her analysis as “subjective based on objective methods.” (Id. at 17)

C. Analysis of the Ballistics Evidence in this Case

Criminalist Kamalakshan testified that she served as the “verifier” for Criminalist Monroe’s conclusions. (Id. at 16) As the verifier, she “conduct[ed] an independent verification of the evidence,” “ma[de] [her] own comparison,” and “[came] to a conclusion,” which is noted on the verification sheet of the lab report she evaluated. (Id.)

On April 11, 2024, Kamalakshan reviewed NYPD Lab Report 5, in which Criminalist Monroe concluded that the four 9 mm. shell casings found inside the Apartment on February 14, 2023, were not fired from the same gun as the casings recovered outside of the Apartment. (Id. at 14-15; GX 100) Criminalist Kamalakshan testified that – after conducting her analysis – she reached the same conclusion as Criminalist Monroe: namely, that the shell casings fall into “two groups” that were fired from “two guns.” (May 9, 2024 Hr’g Tr. at 19) In reaching this conclusion, Kamalakshan examined each of the underlying pieces of ballistics evidence – that is, each of the individual cartridge casings – using a “microscopic side-by-side . . . comparison,” to look for similarities in the markings. (Id. at 16-17) The side-by-side photographs included in the lab report – which were taken by Criminalist Monroe – show “two separate casings” separated by a “line of demarcation” in the center. (Id. at 19) The side-by-side comparison allows the analyst to “look[] at the same markings that are on both casings in the same spatial arrangement.” (Id. at 20) Criminalist Kamalakshan testified that she did not review Monroe’s side-by-side comparison photos before reaching her conclusions. (Id. at 19)

On April 15, 2024, Criminalist Kamalakshan reviewed NYPD Lab Report 6, in which Criminalist Monroe concluded that the four shell casings recovered from inside the Apartment matched the four shell casings test fired from the 9 mm. pistol that was recovered from the safe. (Id. at 15-16, 21; GX 101) Criminalist Kamalakshan reached the same conclusion as Criminalist Monroe: namely that the four shell casings recovered from inside the Apartment “matched to the test fires.” (May 9, 2024 Hr’g Tr. at 23) She explained that the two photographs included in the lab report – which were taken by Criminalist Monroe – show the scene evidence side by side with the test-fires, separated by a line of demarcation. (Id. at 24) The photos “show[] [that] the same markings are found in the same spatial arrangement on the

cartridge casing[s]” for both the scene evidence and the test-fires. (*Id.* at 24) The photos show “multiple striations” of “good quality” in common, with “similar depth,” in which “all of th[e] lines go together.” (*Id.* at 28-29) Kamalakshan noted that the photos only represent a “snapshot” of the evidence she reviewed, and that she examined each of the individual cartridge casings by microscopic side-by-side comparison before reaching her conclusions. (*Id.* at 16-17, 25) After completing her analysis, Kamalakshan determined that the shell casings demonstrated “sufficient agreement,” such that Kamalakshan can conclude that the shell casings recovered from inside the Apartment “matched to the test fires made by [the] pistol.” (*Id.* at 26, 28)

DISCUSSION

As noted above, Defendant argues that this Court should exclude Criminalist Kamalakshan’s testimony, because “the government cannot show that the field of ballistics identification is scientifically valid[,] and has not shown that the witness conducted her examination of the ballistics evidence in a reliable manner.” (Def. MIL Br. (Dkt. No. 53) at 3)

I. LEGAL STANDARD

Whether expert testimony should be admitted is a matter committed to the trial judge’s “broad discretion.” *Boucher v. U.S. Suzuki Motor Corp.*, 73 F.3d 18, 21 (2d Cir. 1996) (citations omitted). Under Federal Rule of Evidence 702,

[a] witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702.

In Daubert v. Merrell Dow Pharmaceuticals, Inc., the Supreme Court instructed that Rule 702 imposes a “gatekeeping” responsibility on trial courts to “ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable.” Daubert, 509 U.S. 579, 589, 597 (1993). “Rule 702 is not limited to admissibility of scientific evidence alone, but also governs ‘technical’ or ‘specialized’ evidence which, by necessity, does not meet the rigors of scientific analyses,” and a district court’s gatekeeping responsibility under Daubert extends to such non-scientific testimony as well. United States v. Willock, 696 F. Supp. 2d 536, 569 (D. Md. 2010) (citing Kumho Tire Co. v. Carmichael, 526 U.S. 137, 141 (1999)); United States v. Taylor, 663 F. Supp. 2d 1170, 1173-74 (D.N.M. 2009)).

“Per Daubert and its progeny, a court’s Rule 702 inquiry involves the assessment of three issues: (1) the qualifications of the expert, (2) the reliability of the methodology and underlying data employed by the expert, and (3) the relevance of that about which the expert intends to testify.” Washington v. Kellwood Co., 105 F. Supp. 3d 293, 304 (S.D.N.Y. 2015) (citations omitted). The party seeking to introduce expert testimony bears “the burden of establishing by a preponderance of the evidence that the admissibility requirements of Rule 702 are satisfied.” United States v. Williams, 506 F.3d 151, 160 (2d Cir. 2007) (citations omitted).

“[W]hether a purported expert is qualified under Rule 702 is an inquiry to be resolved prior to all others.” Washington, 105 F. Supp. 3d at 304 (citations omitted). “Whether a proposed expert has the requisite qualifications depends on his or her educational background, training, and experience in the field(s) relevant to the opinions he or she seeks to give.” S.E.C. v. Toure, 950 F. Supp. 2d 666, 674 (S.D.N.Y. 2013).

In assessing reliability, “the district court must focus on the principles and methodology employed by the expert, without regard to the conclusions the expert has reached or the district court’s belief as to the correctness of those conclusions.” Amorgianos v. Nat’l R.R. Passenger Corp., 303 F.3d 256, 266 (2d Cir. 2002). In determining whether the expert’s opinion is reliable, a trial court should consider, *inter alia*, “the theory’s testability, the extent to which it ‘has been subjected to peer review and publication,’ the extent to which a technique is subject to ‘standards controlling the technique’s operation,’ the ‘known or potential rate of error,’ and the ‘degree of acceptance’ within the ‘relevant scientific community.’” United States v. Romano, 794 F.3d 317, 330 (2d Cir. 2015) (quoting Daubert, 509 U.S. at 593-94). The inquiry is a “flexible one,” however, and there is no “definitive checklist or test” for determining the reliability of expert testimony. Id. (internal quotation marks and citations omitted). Indeed, “Daubert’s list of specific factors neither necessarily nor exclusively applies to all experts or in every case.” Kumho Tire, 526 U.S. at 141. “As the Supreme Court has explained, ‘[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.’” Amorgianos, 303 F.3d at 267 (quoting Daubert, 509 U.S. at 596).

Finally, a trial court must consider whether the expert’s testimony will assist the jury. “This inquiry looks primarily to whether the testimony is relevant.” 523 IP LLC v. CureMD.Com, 48 F. Supp. 3d 600, 644 (S.D.N.Y. 2014) (citation omitted). “Evidence is relevant if: (a) it has any tendency to make a fact more or less probable than it would be without the evidence; and (b) the fact is of consequence in determining the action.” Fed. R. Evid. 401.

II. ANALYSIS

A. Criminalist Kamalakshan's Qualifications

Defendant does not dispute Criminalist Kamalakshan's qualifications to offer testimony regarding ballistics analysis.

Criminalist Kamalakshan has seven years of experience working in the Firearm Analysis Section of the NYPD Laboratory, where her day-to-day duties involve the microscopic comparison of ballistics evidence. (May, 9 2024 Hr'g. Tr. at 3) As discussed above, she has received substantial training in ballistics analysis pursuant to the AFTE curriculum, during which she "analyzed and examined thousands of pieces of [ballistics] evidence." (Id. at 5) She has also successfully passed competency tests, including an annual proficiency examination. (Id. at 6-7) She has analyzed ballistics evidence in "over 100 cases" (id. at 11), and has offered expert testimony concerning ballistics evidence in the past. (Id. at 11-12)

The Court concludes that Criminalist Kamalakshan is qualified by virtue of her training and experience to offer expert testimony concerning ballistics evidence.

B. The Reliability of Criminalist Kamalakshan's Testimony

In challenging the reliability of Kamalakshan's toolmark identification analysis, Defendant's briefing does not cite to any particular study or publication. Defendant merely asserts that toolmark identification analysis "is not based upon a scientifically valid methodology." (Def. MIL Br. (Dkt. No. 53) at 2)

At the Daubert hearing, however, defense counsel cross-examined Criminalist Kamalakshan regarding a 2016 report entitled Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods, prepared by the President's Council of Advisors on Science and Technology (the "PCAST Report"). (DX B)

The PCAST Report criticizes AFTE’s “sufficient agreement” approach – the same standard relied upon by Criminalist Kamalakshan – as “circular,” and notes that the conclusions reached pursuant to the sufficient agreement approach are concededly “subjective.” (*Id.* at 104) The PCAST Report goes on to state that while “it is not necessary that toolmarks be unique for them to provide useful information about whether a bullet may have been fired from a particular gun[,] . . . it is essential that the accuracy of the method for comparing [toolmarks] be known based on empirical studies.” (*Id.* at 105) (emphasis in original)

The PCAST Report acknowledges that, “[o]ver the past 15 years, the field has undertaken a number of studies that have sought to estimate the accuracy of examiners’ conclusions,” but asserts that “many of the studies were not appropriate for assessing scientific validity and estimating the reliability because they employed artificial designs that differ in important ways from the problems faced in casework.” (*Id.* at 106) The PCAST Report concludes that “firearms analysis currently falls short of the criteria for foundational validity, because there is only a single appropriately designed study to measure validity and estimate reliability.” (*Id.* at 112)

Despite these criticisms of toolmark identification analysis, the PCAST Report does not make any recommendations regarding the use of such evidence at trial: “[w]hether firearms analysis should be deemed admissible based on current evidence is a decision that belongs to the courts.” (*Id.*)

In response to defense counsel’s use of the PCAST Report, the Government has provided two studies of toolmark analysis – conducted after the PCAST Report was issued – which purport to show an error rate below 1%. In the first study, published in 2020, 74 toolmark examiners analyzed ballistics evidence – bullets rather than cartridge casings – fired from 30

consecutively manufactured Beretta 9 mm. pistols. (Jaimie A. Smith, Beretta Barrell Fired Bullet Validation Study, 66 J. Forensic Scis. 547 (2020), Govt. Ex. D (Dkt. No. 57-4) at 2) The examiners compared these bullets against other bullets fired by those same pistols, as well as against bullets fired from other firearms. (Id. at 2) Accordingly, by design, certain of the bullets would have a match, while others would not. The study reports a false positive rate of approximately 0.56%, or just 0.08% when “typographical errors” and information incorrectly transmitted by the examiner is taken into account. (Id. at 6-7)

In the second study, published in 2022, 173 firearms examiners performed a total of 8,640 comparisons of bullets and cartridge cases generated from test firing three types of firearms. (Keith L. Monson, et al., Accuracy of Comparison Decisions by Forensic Firearms Examiners, 68 J. Forensic Scis. 86, 87 (2022), Govt. Ex. E (Dkt. No. 57-5) at 2). This study was designed so that there would not necessarily be an appropriate match for every piece of evidence tested. (Id. at 3) The false positive identification rate was estimated to be 0.656% for bullets and 0.933% for cartridge cases. (Id. at 2) The study noted that most of the errors were made by “a limited number of examiners.” (Id.)

This Court addressed the reliability of ballistics evidence in United States v. Johnson, No. (S5) 16 CR. 281(PGG), 2019 WL 1130258, at *1 (S.D.N.Y. Mar. 11, 2019), aff’d, 861 F. App’x 483 (2d Cir. 2021), where Johnson – citing the PCAST Report – challenged the scientific validity of “toolmark identification,” and sought to preclude or limit the Government’s proposed expert testimony from a toolmark examiner. Id.

As to the testability component of the Daubert analysis, this Court concluded that there is “little dispute that toolmark identification is testable as a general matter.” Id. at *15. Indeed, the PCAST Report “observed that ‘[o]ver the past 15 years, the field has undertaken a

number of studies that have sought to estimate the accuracy of examiners' conclusions.” Id. (quoting PCAST Report at 106) (alterations in original) Moreover, “many courts have relied on the existing scientific literature – including the studies examined in the PCAST Report – in concluding that toolmark identification analysis satisfies the ‘testability’ factor of Daubert.” Id. (collecting cases). The two new studies proffered by the Government here – both of which address methodological criticisms levelled in the PCAST Report – provide further support for the “testability” of toolmark analysis.

The “testability” of Criminalist Kamalakshan’s methodology is also supported by the annual proficiency testing she undergoes. These proficiency tests “provide a mechanism by which to test examiners’ ability . . . to accurately determine whether bullets and cartridge casings have been fired from a particular weapon.” Id.

The Court concludes that Criminalist Kamalakshan’s methodology can be and has been tested sufficiently to satisfy the first Daubert factor.

As to “whether the theory or technique has been subjected to peer review and publication,” Daubert, 509 U.S. at 593, there is a “substantial body of literature concerning the AFTE methodology” employed by Criminalist Kamalakshan. Johnson, 2019 WL 1130258, at *16. “Most of the literature concerning the AFTE theory and methodology has been published in AFTE’s peer-reviewed journal, the AFTE Journal,” and “[c]ourts addressing this Daubert factor have determined that the AFTE Journal scholarship qualifies as peer-reviewed literature.” Id. (collecting cases). Accordingly, this Daubert factor weighs in favor of admission.

As to “the existence and maintenance of standards controlling the technique’s operation,” Daubert, 509 U.S. at 594, “courts and the scientific community have voiced serious concerns about the ‘sufficient agreement’ standard” employed by Criminalist Kamalakshan,

“characterizing it as ‘tautological,’ ‘wholly subjective,’ ‘circular,’ ‘leav[ing] much to be desired,’ and ‘not scientific.’” Johnson, 2019 WL 1130258, at *17 (alterations in original).

This Court shares some of these concerns. As stated in Johnson, however, this Court believes that the methodology is governed by controlling standards sufficient to render it reliable. As an initial matter, “photographic documentation and verification requirements are industry standards” for toolmark analysis, and those standards were adhered to in this case. Id. Criminalist Kamalakshan’s conclusions are supported by side-by-side photographs of the cartridge casings she examined.

The photographic comparisons demonstrate how Kamalakshan determined that the striations on two cartridge casings line up or “match” with each other. The photographic comparisons reflect striations that line up with uncanny similarity between the test-fired cartridge casings and those recovered from the Defendant’s apartment. The “matching” of the striations is compelling to the naked eye, even to an untrained observer.

And while Criminalist Kamalakshan admits that her analysis is “subjective,” (May 9, 2024 Hr’g Tr. at 17), “all technical fields which require the testimony of expert witnesses engender some degree of subjectivity requiring the expert to employ his or her individual judgment, which is based on specialized training, education, and relevant work experience.” United States v. Simmons, No. 2:16 Cr. 130, 2018 WL 1882827, at *5 (E.D. Va. Jan. 12, 2018), report and recommendation adopted, No. 2:16 Cr. 130, 2018 WL 658693 (E.D. Va. Feb. 1, 2018) (emphasis removed). Accordingly, “the presence of a subjective element in a technical expert’s field does not operate as an automatic bar to admissibility.” Id.

Finally, Kamalakshan served as the second examiner for the ballistics evidence, verifying the original findings made by Criminalist Monroe.

The Court concludes that sufficient controlling standards exist to admit Criminalist Kamalakshan's testimony.

As to the "known or potential rate of error" associated with toolmark identification, Daubert, 509 U.S. at 594, courts have stated that "the methodology's error rate is difficult or impossible to determine and, at any rate, is presently unknown." Johnson, 2019 WL 1130258, at *18 (collecting cases). Even accepting the estimate in the PCAST Report that "the error rate could be as high as 1 in 46, or close to 2.2%," however, such an error rate is not "impermissibly high." Id. at 19. Moreover, the two more recent studies cited by the Government suggest that the error rate is under 1%.

The Court concludes that the absence of a definitive error rate for toolmark identification does not require that such evidence be precluded.

Finally, as to the "[w]idespread acceptance" of the technique, Daubert, 509 U.S. at 594, there is no dispute that toolmark identification analysis is a generally accepted method in the community of forensic scientists, and among firearms examiners in particular.

For all of these reasons, the Court concludes that the Daubert factors – on balance – weigh in favor of admitting Criminalist Kamalakshan's testimony. As this Court stated in Johnson, "the weaknesses in the methodology of toolmark identification analysis are readily apparent, have been discussed at length in the scientific literature, and can be addressed effectively on cross-examination. These weaknesses are also not particularly complicated or difficult to grasp, and thus are likely to be understood by jurors if addressed on cross-examination." Johnson, 2019 WL 1130258, at *19.

Accordingly, Defendant's motion to preclude Criminalist Kamalakshan's testimony will be denied.

C. Limitations on Criminalist Kamalakshan's Testimony

Defendant argues that – if any aspect of Criminalist Kamalakshan's testimony is admitted – this Court should “limit” her testimony in light of the reliability issues he has identified. (Def. MIL Br. (Dkt. No. 53) at 3) Although Defendant does not state what “limit” this Court should impose, he cites two cases in which courts have imposed limits on the Government's use of ballistics evidence. (Id. at 4-5)

In United States v. Glynn, 578 F. Supp. 2d 567 (S.D.N.Y. 2008), Judge Rakoff ruled that the Government's ballistics expert could testify only that a “firearms match” was “more likely than not.” Glynn, 578 F. Supp. 2d at 575. And in United States v. McBride, 20 Cr. 363(PKC) (S.D.N.Y. Apr. 28, 2021), Dkt. No. 66, Judge Castel required the Government's ballistics expert to testify that his conclusions were “subjective,” and to opine merely that the evidence analyzed was “consistent with . . . having been fired through the same firearm.” McBride, 20 Cr. 363, Dkt. No. 66, Trial Tr. at 187.

Here, Criminalist Kamalakshan has already stated that her analysis is “subjective.” (May 9, 2024 Hr'g Tr. at 17) And at the Daubert hearing, she did not assign any particular level of certainty to her findings. (Id.) Moreover, the Government has represented that it does not intend to elicit from Kamalakshan at trial any particular level of certainty as to her conclusions. (Govt. MIL Opp. (Dkt. No. 57) at 4)

Given the evidence at the Daubert hearing and the Government's representations as to what it will elicit from Criminalist Kamalakshan, there is no need for this Court to impose limits on Kamalakshan's testimony at trial.

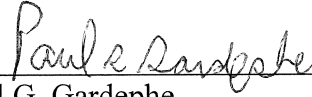
CONCLUSION

For the reasons stated above, Defendant's motion to preclude or limit Criminalist Kamalakshan's testimony is denied.

The Clerk of Court is directed to terminate the motion (Dkt. No. 53).

Dated: New York, New York
May 13, 2024

SO ORDERED.



Paul G. Gardephe
United States District Judge